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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,461	12/03/2004	Xavier Hugon	62819 (4590-353)	2868
33308 7590 11/27/2007 LOWE HAUPTMAN & BERNER, LLP 1700 DIAGONAL ROAD, SUITE 300 ALEXANDRIA, VA 22314			EXAMINER CONNELLY CUSHWA, MICHELLE R	
			ART UNIT 2874	PAPER NUMBER
			MAIL DATE 11/27/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/516,461	<b>Applicant(s)</b> HUGON ET AL.	
	<b>Examiner</b> Michelle R. Connelly-Cushwa	<b>Art Unit</b> 2874	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 14, 2007 has been entered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Randall et al. (US 2002/0196549).

Regarding claim 1; Figure 5C of Randall shows an optical filtering component comprising a tunable (at least abstract) wavelength selective filter (510, 511) capable of transmitting a spectral band centered around wavelength (Figure 15) and reflecting light whose wavelength is outside said band (definition of a band pass filter); and input guide (551) conducting light radiation to the filter (510, 511) wherein the input guide (551) conducts the radiation to the filter (510, 511) in order to perform a first pass through it; and means (520) for returning a first part of the radiation reflected by the filter (510, 511)

during the first pass in order to perform a second pass through it (at least ¶0084); and a collimation means (array of lenses, 505, 506) common to the input waveguide (551), to the return means (520), and to the second output waveguide (552).

Therefore, the claimed invention is disclosed by Randall except for the spectral bands to be "narrow". Figure 15a suggests the wavelength bands passed by the filter (510, 511) and wavelengths reflected by the filter (outside bands) when the device is used to compensate for dispersion in MUX communication devices. These wavelength bands appear to be narrow. One of ordinary skill in the art would expect the wavelength bands passed by the filter (510, 511) to be as narrow as required by the specification of the input to the system; and conventional optical communication systems include information contained in optical signals within very narrow wavelength bands. Furthermore, multiplayer interference filters, such as the filter (110) taught by Randall, are generally narrow band pass filters. For example "Understanding Fiber Optics," by Jeff Hecht teaches that such filters transmit a narrow range of wavelengths (page 362). One of ordinary skill in the art would expect the pass bands of the filter (110) to be narrow. Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art to ensure the wavelength bands passed by the filter (510, 511) of Randall were narrow bands. In order to compensate for dispersion in modern optical communication systems, which have information contained in narrow wavelength bands.

Regarding claim 2; Figure 5C of Randall shows a second output guide (552) conducting a fourth part of the radiation reflected by filter (510; 110 in Figure 1).

Regarding claims 3, 11 and 12; in addition to the rejection of claims 1 and 2 previously discussed above, the array of collimating lenses (505, 506) is shown to be arranged, with regard to the optical path of the device, on the one hand, the filter (510, 511), and on the other hand, the input waveguide (551), the return means (520) and the second output waveguide (552; Figure 5C).

Regarding claim 4; in addition to the rejection of claim 1 previously discussed above, the array of collimating lenses (505, 506) are suggested to be GRIN lenses (¶0059).

Regarding claim 5; in addition to the rejection of claim 4 previously discussed above, Figure 5C shows the focal plane of the lens (505) coinciding with an input face of the lens (505).

Regarding claims 6, 13 and 14; in addition to the rejection of claims 1, 2 and 3 previously discussed above, Figure 5C shows the return means (520) directing the first part of the radiation to the filter (510, 511) with the same incidence as the input guide (551; i.e. the return light path is the same as the incoming light path).

Regarding claims 7 and 15-17; in addition to the rejection of claims 1-4 previous discussed above, Randall suggests that the means for tuning the device comprises tilting the filter (510, 511; ¶0028).

Regarding claims 8 and 18-19; in addition to the rejection of claims 1-3 previously discussed above, optical filtering device (510, 511) includes a means for inserting radiation whose length is substantially centered on the given wavelength.

Regarding claims 9 and 21-22; in addition to the rejection of claims 1-3 previously discussed above, the limitations recited are directed to a method of forming the reflective element, while the claims are directed to an apparatus, and therefore cannot be given patentable weight. Such method limitations can only be given weight in a claim with a method style preamble. Moreover, Randall suggests that the reflective element (520) can be a MLIF reflector (¶0064), which are commonly formed from ion implantation (ion exchange) and glass plat photolithography, which are well-known methods of forming optical articles. It would have been obvious at the time of the invention to one of ordinary skill in the art to form the optical return means from either of said methods because they are conventional methods commonly used to form such articles.

Regarding claims 10 and 22-23; in addition to the rejection of claims 1-3 previously discussed above, the claimed invention has been disclosed and discussed expect for an amplifier. Amplifiers are well known in the art to be used in situation s where optical attenuation occurs. Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art to include an amplifier in the optical filtering device of Randall in order to amplify the optical signal to compensate for any attenuation caused by the filter (510, 511).

Regarding claim 24; in addition to the rejection of claim 1 previously discussed above, Figure 5C of Randall shows the input guide (551) and output guide (552) to be distinct.

***Response to Arguments***

Applicant's arguments filed May 14, 2007 have been fully considered but they are not persuasive.

Applicant argues that in the present invention there is only one collimation means; that in the invention of Randall a first embodiment includes one guide that acts as both an input and an output and has one collimation means, and a second embodiment that has two guides, one for inputting and one for outputting and two collimation means; and that the present invention has two guides and only one collimation means to the two guides.

Independent claim 1, however, recites "collimation means" and does not further define what the collimation means are. "Collimation means" is a broad term. The collimation means in the embodiment of the invention of Randall that includes separated input and output guides is an array of lenses, wherein the array of lenses is common to the input and output guides. The term collimation means is not the same as a single, unitary collimating element or lens, rather the term is limited to any and all means for collimating, including an array of individual lenses.

Furthermore, the use of a single large collimation element or an array of smaller collimation elements to couple light to and from separate input and output guides is considered to be within the level of ordinary skill in the art, since the use of a single lens or an array of lenses would be an obvious variation on known devices.

### ***Conclusion***


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Any inquiry concerning the merits of this communication should be directed to Examiner Michelle R. Connelly-Cushwa at telephone number (571) 272-2345. The examiner can normally be reached 9:00 AM to 7:00 PM, Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B. Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general or clerical nature should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562.

  
Michelle R. Connelly-Cushwa  
Patent Examiner  
November 26, 2007